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IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MONTANA
BUTTE DIVISION

CENTER FOR BIOLOGICAL DIVERSITY *et al.*, Plaintiffs, v. SALLY JEWELL, *et al*, Defendants, STATE OF MONTANA *et al.*, Defendant Interveners	Case No. 2:15-cv-4-SEH **STATE OF MONTANA AND DEPARTMENT OF FISH, WILDILFE AND PARKS' BRIEF IN SUPPORT OF CROSS MOTION FOR SUMMARY JUDGMENT**

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I. INTRODUCTION

Plaintiffs challenge the U.S. Fish & Wildlife Service's (FWS) 2014 Finding (79 Fed. Reg. 49384, Aug. 20, 2014) ("2014 Finding") that listing of the Upper Missouri River distinct population segment ("DPS") of Arctic grayling as "endangered" or "threatened" under the Endangered Species Act ("ESA"), 16 U.S.C. §§ 1531 *et seq.*, was not warranted. In their Brief In Support of Cross Motion For Summary Judgment ("Fed. Br."), Federal Defendants provide an initial introduction to the present case, which is adopted by and incorporated herein by reference by Intervener Defendants State of Montana and Montana Department of Fish, Wildlife and Parks ("FWP").

FWP, along with FWS and other partners, has played an active role in conserving and restoring the Arctic grayling within the Upper Missouri DPS. FWP's efforts have resulted in tangible conservation benefits and should be considered in the adjudication of this case. This is precisely what the ESA is intended to do. Indeed, the ESA's purpose is being fulfilled without listing.

II. STATUTORY BACKGROUND: THE ENDANGERED SPECIES ACT

The Endangered Species Act was enacted to "provide a program for the conservation of . . . endangered species and threatened species." 16 U.S.C. § 1531(b). In furtherance of this broad conservation goal, the ESA sought to "encourag[e] the States and other interested parties . . . to develop and maintain

conservation programs" as a "key" to "better safeguarding" fish and wildlife. 16 U.S.C. § 1531(a). The ESA's legislative history illuminates the importance of state programs, as it was understood that "States should have the primary and first responsibility in determining the management procedure for management of a species that is located within the State's boundaries . . . ." Endangered Species: Hearings on HR. 37 Before the Subcomm. on Fisheries and Wildlife Conservation and the Env't. of the H. Comm. on Merch. Marine and Fisheries, 93d Cong. 327 (1973) (statements of Representative John Breaux).

The ESA defines endangered species as those "in danger of extinction throughout all or a significant portion of [their] range," while threatened species are those "likely to become . . . endangered . . . within the foreseeable future." 16 U.S.C. § 1532(6), (20). In making the decision whether to list a species, the Secretary of the Interior must consider five factors: "(A) the present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence." 16 U.S.C. § 1533 (a)(1), 50 CFR § 424.11(c) . A deficiency in any of these factors, alone or in combination, results in a non-discretionary listing of the species. 50 CFR § 424.11(c). In addition to consideration of the five factors, ESA also instructs the

Secretary to take into account any efforts being made by the state, or any subdivisions thereof. 16 U.S.C § 1533(b)(1)(A). Federal agencies have interpreted state efforts to mean "conservation efforts identified in a conservation agreement, conservation plan, management plan, or similar document." Policy for the Evaluation of Conservation Efforts When Making Listing Decisions, 68 Fed. Reg. 15,100.

III. FACTUAL BACKGROUND: ARCTIC GRAYLING MANAGEMENT IN MONTANA

The Upper Missouri DPS consists of twenty individual populations, eighteen of which are found entirely or mostly on federal land, and two which occur primarily on privately owned land (Big Hole River and Ennis Reservoir/Madison River populations). 79 Fed. Reg. at 49,396-49,397. With the exception of the Ennis Reservoir/Madison River population, all populations are either stable or increasing in number at this time. *Id.* 49,399.

FWP is responsible for the supervision, management, and regulation of Montana wildlife and wildlife habitat and has a duty to manage Arctic grayling in a manner that prevents the need for listing. *See* Mont. Code Ann. §§ 87-1-201, 87-1-301. In 1987, in accordance with these mandates, FWP established the Arctic Grayling Recovery Program. 79 Fed. Reg. at 49,408. Under this program, FWP has created genetic reserves of both the Big Hole and the Centennial Valley Arctic grayling and has used those reserves to reintroduce grayling into the upper Ruby

River, Rock Creek, the Wise River, and tributaries to Upper Red Rock Lake. *Id.* 49,409.

In 2006, a Candidate Conservation Agreement with Assurances ("CCAA") was created in the Big Hole River (pursuant to 50 CFR § 17.32) in order to "secure and enhance the fluvial population of Arctic grayling in the upper Big Hole River drainage."[1] 79 Fed. Reg. at 49,400, 49,407. Since inception, 52 percent of eligible land has been enrolled in the CCAA. *Id.* The CCAA is specifically designed to address some of the greatest threats facing Arctic grayling, such as low streamflows, degraded riparian habitat, entrainment in irrigation ditches, and barriers to grayling movement. CCAA priorities are determined by the Big Hole Strategic Habitat Conservation Plan ("SHCP"), a "science-based framework" for prioritizing conservation goals for Arctic grayling. *Id.*

The CCAA seeks to improve streamflows by improving "Participating Landowner" control over their water, reducing the amount of water diverted, and increasing efficiency of delivered water. AGPF004639 - 40. To accomplish this, the CCAA employs three conservation measures: "compliance with water rights, arrangements to reduce irrigation withdrawals, and improved irrigation management." *Id.*

[1] A Candidate Conservation Agreement with Assurances is an agreement between FWS and any non-Federal entity whereby non-Federal property owners who voluntarily agree to manage their lands or waters to remove threats to species at risk of becoming threatened or endangered receive assurances against additional regulatory requirements should that species be subsequently listed under ESA. AGPF004617.

Protecting and restoring riparian function is accomplished under the CCAA by "maintaining existing high-quality riparian habitats, implementing active restoration actions to replace lost riparian habitat, or permitting passive recovery of degraded riparian habitat through land management actions that allow recovery of willow and riparian vegetation communities." AGPF004660. Entrainment threats are addressed by "conducting a comprehensive fish survey of all irrigation ditches on enrolled lands, rescuing grayling from ditches concurrent with the surveys, and conducting a thorough analysis and assessment of the threat posed by entrainment." AGPF004664. Participating Landowners are obligated to implement measures that reduce or eliminate the threat. *Id.*

To reduce barriers to movement, "Participating Landowners are required to remove any structure that is a barrier to grayling movement or modify it to permit passage of juvenile and adult grayling within 5 years of the determination that the structure impedes grayling passage." AGPF004667. Each Participating Landowner has their own site-specific plan under the CCAA, which may be revoked for non-compliance. AGPF004756. Removal from the CCAA has the effect of removing take authorizations and regulatory assurances under the Agreement. *Id.*

IV. STANDARD OF REVIEW

Review of the Plaintiffs' claims is governed by the Administrative

Procedure Act ("APA"). 5 U.S.C. § 706. Under this standard, a court may only set aside final agency action if that action is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). A final agency action is considered to be arbitrary and capricious:

> if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983). Conversely, a final agency action should be upheld where a reasonable basis exists for the FWS' decision. *See Kern Co. Farm Bureau v. Allen*, 450 F.3d 1072, 1076 (9th Cir. 2006). In examining FWS' decision, the court must "consider whether the decision was based on a consideration of the relevant factors and whether that has been a clear error of judgment." *San Luis & Delta-Mendota Water Auth. v. Jewell*, 747 F.3d 581, 601 (9th Cir. 2014) (quoting *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416 (1971)). The standard of review is "highly deferential," and, where supported by substantial evidence, the FWS' findings must be upheld, even if that evidence is susceptible to more than one rational interpretation. *Id.*

Deference to the FWS is highest "when reviewing scientific judgments and technical analyses within the agency's expertise." *N. Plains Res. Council v.*

Surface Transp. Bd., 668 F.3d 1067, 1075 (9th Cir. 2011); *see also Ecology Ctr. v. Castaneda*, 574 F.3d 652, 658-59 (9th Cir. 2009) ("We grant considerable discretion to agencies on matters requiring a high level of technical expertise."). Courts may uphold decisions of the FWS even if they are of "less than ideal clarity," as long as the FWS' "path may be reasonably discerned." *Motor Vehicle Mfrs. Assn.*, 463 U.S. at 44.

V. ARGUMENT

A. FWS Correctly Determined Arctic Grayling Were Not Threatened by Habitat Loss under Factor A of the ESA Due in Part to Landowner Projects Implemented under the CCAA.

Plaintiffs allege FWS' finding under Factor A of the ESA that Arctic grayling were not threatened by habitat loss was arbitrary. *See* Complaint, ¶¶ 66-77, 84-86. FWS determined Arctic grayling in the Upper Missouri DPS were not threatened by habitat loss, in part because historical threats to habitat "are systematically being eliminated or minimized by the CCAA and SHCP through conservation projects[.]" 79 Fed. Reg. at at 49,409. This finding was reasonable and well-supported by the record.

Under the CCAA, streamflows in the Big Hole have increased substantially. *See* 79 Fed. Reg. at 49,404. Landowners enrolled in the CCAA are the "primary factor" in these increases through decreased irrigation withdrawals. *Id*. Plaintiffs appear not to understand how the CCAA's instream flows, targets, and goals

interrelate, leading them to mischaracterize the results. For instance, Plaintiffs' claim that the CCAA's "targets are operative only in years of average or greater snowpack" is not true. *See* Pls. Mem. at 10. Biologically based streamflow *targets* are operative *every year*, regardless of snowpack. AGPF004650 (Table 3, showing targets tied to time of year irrespective of snowpack). The CCAA attempts to reach these targets through supplemental flow agreements which provide that landowners will "adjust (stop or reduce) diversions during specific calendar dates or flow conditions." AGPF004642. Landowners who do not comply risk losing the legal protections of the CCAA. *See* AGPF004686.

While the parties to the CCAA agreed to "strive toward 100% attainment and exceedance of flow targets within 10 years," factors beyond their control, including "delayed spring run-off, water use by non-enrolled landowners, and cumulative drought conditions" made that unlikely, even in years of average snowpack. *Id*. Accordingly, a practical *goal* of 75 percent of days in years of at least average snowpack was established. *See* AGPF004651. That goal, notably, has been exceeded, with target flows reached 78 percent of the time. 79 Fed. Reg. at 49,404.

Similarly, the CCAA's prediction of overall improved streamflows has proven correct. For example, the CCAA anticipated it would increase "the number of days that meet or exceed flow targets" and that daily flows would increase

"even if flow targets are not always met," representing an "improvement over [pre-CCAA] conditions." AGPF004651, 79 Fed. Reg. at 49,404. Plaintiffs' characterization that the CCAA leaves insufficient flows one out of every four days is an oversimplification of an otherwise dynamic hydrologic process. *See* Pls. Mem. at 10.

Participating Landowner efforts under the CCAA have also resulted in "substantial reductions in water temperatures." 79 Fed. Reg. at 49,407. Along with higher instream flows, riparian enhancement projects and changes to channel morphology have reduced solar radiation, resulting in lower water temperatures. 79 Fed. Reg. at 49,406-07.

Attempting to undermine the results of Landowner efforts, Plaintiffs incorrectly focus on a 70-degree threshold for grayling survival as opposed to the more important threshold of 77 degrees. *See* Pls. Mem. at 10. While the 2014 Finding acknowledges that temperatures exceeding 70 degrees are "considered to be physiologically stressful" for cold-water fish such as grayling, it specifies no actual harm resulting from that temperature. *See* 79 Fed. Reg. at 49,403. Rather, it is 77 degrees that is considered potentially harmful and the point at which "fish kills" may occur. *Id*.

Even so, water temperatures of 77 degrees alone do not result in automatic fish die-offs. Other factors come into play, particularly the *amount of time* fish

must endure temperatures above 77 degrees. *See* AGL001466. Wild fish acclimated to naturally fluctuating temperatures "have longer resistance times" to higher temperatures. AGL001471. At the southern extreme of the Arctic grayling's natural habitat, Montana grayling have further adapted to naturally warmer temperatures than members of the species farther north. *See* 79 Fed. Reg. at 49,394. Indeed – and contrary to Plaintiffs' suggestions – grayling's resiliency is demonstrated by the fact that the last documented fish kill in the Big Hole occurred in 1994. 79 Fed. Reg. at 49,403.

The grayling's ability to survive warmer temperatures is enhanced by their tendency to seek thermal refugia in cooler tributaries. *Id.*, *see also* AGPF004303. Plaintiffs do not challenge the FWS' conclusion on this point. Instead they allege – incorrectly – that FWS failed to explain why it reached a different conclusion about thermal refugia in the 2010 Finding than in the 2014 Finding. Pls. Mem. at 10.

However, FWS did explain why it reached a different conclusion in the 2014 Finding. Following its discussion of dewatering, increased water temperatures, thermal refugia, and CCAA-initiated projects that opened new habitat to grayling, FWS concluded "[t]he collective result of these efforts are increasing streamflows, increased access to coldwater refugia via fish ladders, and marked temperature reductions, particularly in some tributaries." 79 Fed. Reg. at 49,403. The

implication is clear: Landowner projects initiated under the CCAA have opened new habitat to grayling, allowing greater access to cool tributaries than at the time of the 2010 Finding. As a result of these efforts, "no fish barriers now exist in the mainstem upper Big Hole River" and 98 percent of the highest quality habitat (Tier I) and 68 percent of the next-highest quality habitat (Tier II) is "connected and accessible to Arctic grayling." 79 Fed. Reg. at 49,402.

Plaintiffs try to refute the fact of thermal refugia by arguing that "most" tributaries also have high temperatures, thereby undermining the notion that those streams can serve as refuge. Pls. Mem. at 11. To make their case, Plaintiffs again incorrectly focus on 70 degrees, rather than 77 degrees. More problematic, the reports cited by the Plaintiffs do not support the conclusion Plaintiffs attempt to draw. *See* AGPF002588, AGPF002845. These reports indicate simply a range of temperatures, a few of which exceed 77 degrees and most of which do not. For instance, of the 11 monitoring stations in 2012, only one reached 77 degrees, and only for two hours. *See* AGPF002845. Of the 10 stations in 2013, only three reached 77 degrees, for a total of 57 hours. *See* AGPF002588. No fish kills were reported. This data supports FWS' conclusion that most Big Hole tributaries are cooler and grayling seek them out for refuge. 79 Fed. Reg. at 49,403.

Despite its results, Plaintiffs then attack the CCAA because it fails to address threats to grayling *outside* the Big Hole, such as those in the Madison River and

Centennial Valley. This criticism is misplaced: the Big Hole CCAA – one of the largest in the U.S. – was never intended to cover any area other than the Big Hole, the core of fluvial grayling habitat in Montana. *See* AGPF004619. According to the Plaintiffs, FWS then failed to adequately explain why it changed positions on the Madison River and Centennial Valley populations between 2010 – when FWS concluded high temperatures were a threat – and 2014 – when it concluded thermal refugia mitigated that threat. Plaintiffs claim this change was insufficiently supported, amounting to nothing more than an "email from a state fisheries biologist" and a "report" about "two young grayling." Pls. Mem. at 12. Plaintiffs' characterization of the record, however, relies on cherry-picked quotes taken out of context in an attempt to sow more doubt than actually exists.

In context, the email from the state biologist provides a reasonable basis for FWS' conclusion regarding Centennial Valley grayling. Rather than just the potential existence of "some cold water refugia," the state biologist actually concludes:

> The population there has clearly already experienced exposure to potentially warmer temperatures over the past 10 years and right now it's on an increasing trend and is doing better than it has in the past 40 years. As with most of the proposed threats, because we have empirical information that suggests things are going well I think it's difficult to make a solid argument that warm temperatures in the lake are a threat despite the cool water refugia that exist there.

AGSR000482. This is consistent with the conclusion reached in the 1994 report

concerning "two young grayling," which Plaintiffs also mischaracterize. There the author concluded: "It is assumed these fish were utilizing this stream as summer habitat. The stream contained cooler water than the lake, possibly providing thermal refugia." AGL001421. Put in the proper context, these quotes provide a reasoned basis for the FWS' conclusion.

The results of the CCAA speak for themselves. Higher streamflows, cooler temperatures, more riparian areas, and increased access to cooler tributaries have all contributed to increased grayling populations throughout the project area. *See* 79 Fed. Reg. at 49,398 (Table 3). FWS also appropriately concluded grayling populations were not threatened by habitat loss in the Centennial Valley because of similar restoration projects and additional habitat protections on public lands. 79 Fed. Reg. at 49,409. The FWS' finding that grayling were not threatened by habitat loss was reasonable and well-supported by the record.

B. Regulatory Mechanisms are Adequate to Protect the Upper Missouri Arctic Grayling DPS.

FWP adopts Federal Defendants' argument with respect to FWS' findings on regulatory mechanisms. *See* Fed. Br. at 11. In addition to incorporating Federal Defendants' arguments, two points must be made. First, Plaintiffs characterize the 2014 Finding as "lift[ing] the threat of ESA listing." Pls. Mem. at 9. Thus, they argue that Landowners' motivation to implement conservation measures is gone. *Id.* Plaintiffs' argument is simply incorrect. The 2014 Finding

does not preclude future listing petitions or future evaluations of the Upper Missouri DPS. Thus, the incentive for Landowners to implement conservation measures that help avoid the need to list the Arctic grayling will continue.

Second, Plaintiffs argue that the Montana Water Use Act exacerbates rather than ameliorates the threats to the Arctic grayling posed by dewatering because water rights in the upper Missouri River Basin are over-allocated. Pls. Br. at 7. On the contrary, the Montana Water Use Act (§§ 85-2-101 *et seq.*) offers protections for grayling. Under the Act, the Upper Missouri Basin is closed to new water appropriations. Mont. Code Ann. § 85-2-343. Therefore, in the Upper Missouri Basin above Great Falls (including the Big Hole, Ruby, and Red Rock drainages), with limited exceptions, a new water use permit may not be granted unless an applicant can mitigate the impacts of their proposed use through a flow augmentation project. *See* Mont. Code Ann. §§ 85-2-311; 85-2-360-362. In addition, the Water Use Act explicitly excuses non-use of a water right pursuant to a CCAA, thereby protecting a water right holder from abandonment. Mont. Code Ann. § 85-2-404(3). While dewatering in some streams is still a concern, the Water Use Act is not to blame. Indeed, the Act is a vast improvement over the pre-1973 regulatory condition where anyone could establish a new water right by filing a notice of appropriation and putting water to beneficial use. *See* §§ 89-810, 811,812, R.C.M. (1947).

C. FWS Properly Analyzed Other Natural and Manmade Factors Affecting Arctic Grayling's Continued Existence Including Population Size.

Plaintiffs incorrectly allege that the Upper Missouri DPS of Arctic grayling is threatened by low population size and challenge FWS' analysis of listing Factor E (16 US.C. § 1533(a)(1)(E)) as arbitrary. Compl. ¶¶ 81-83; Pls. Mem. at 16-25. FWS thoroughly analyzed Arctic grayling population dynamics, potential threats from random catastrophic events and climate change, and rationally concluded that Arctic grayling are not threatened by any of these factors. FWS' 2014 Finding is supported by the best available science and by the record.

1. FWS' 2014 Finding with respect to Upper Missouri DPS population size was well reasoned and supported by science not available in 2010.

Throughout their brief, and in particular with respect to population size, Plaintiffs refer to FWS' shift in position from its 2010 Finding to its 2014 Finding as arbitrary. *See* Pls. Mem. at 16-17. Plaintiffs fail to understand the context in which the analysis of individual population size takes place. FWS' 2010 Finding was based on five individual populations within the Upper Missouri DPS. 75 Fed. Reg. at 54,722-23. At that time, other individual populations were not thought to have conservation value. *Id.* at 54,713. By 2014, however, new information led FWS to determine that the Upper Missouri River DPS of Arctic grayling was comprised of 20 populations, including two fluvial (river-dwelling) populations and 16 adfluvial (lake-dwelling) populations. 79 Fed. Reg. at 49,396. The two

remaining populations (Centennial Valley and Madison River/Ennis Reservoir) exhibit fluvial and adfluvial components. *Id.*

FWS thoroughly explained six reasons for including the additional populations in its 2014 Finding. 79 Fed. Reg. at 49,388-390. For example, in 2010 FWS was uncertain the introduced populations originated with native Upper Missouri populations, thereby calling into question their conservation value. 79 Fed. Reg. at 49,388-389. But since 2010, new genetic information from seven of the fourteen introduced populations shows they were derived from native sources within the Upper Missouri River basin. 79 Fed. Reg. at 49,389. FWS goes on to distinguish its current understanding of the introduced adfluvial populations from its 2010 understanding in five more specific ways and concludes that the introduced populations have conservation value. 79 Fed. Reg. at 49,389-90. Therefore, FWS included these populations in the DPS. 79 Fed. Reg. at 49,390. Accordingly, FWS assessed individual subpopulation size and vulnerability to catastrophic events in the context of a DPS with 20 individual populations, not the five populations that were considered in the 2010 Finding.

Plaintiffs cite *FCC v. Fox Television Stations, Inc.*, for the proposition that a "reasonable explanation" is required for an agency to reverse factual findings. 556 U.S. 502, 515 (2009). Federal Defendants argue that *Fox Television Stations* does not apply to the instant case because there was no "reversal" of position. *See* Fed.

Br. at 10-11. Even if *Fox Television Stations* does apply, FWS's thorough discussion clearly qualifies as a "reasoned explanation."

2. FWS used the best available science to properly determine that Arctic grayling are not threatened due to low population size in individual subpopulations.

In its 2014 Finding, FWS provided a comprehensive assessment of individual population sizes within the DPS. Table 3 denotes a number of size parameters for each of six native habitat populations (both fluvial and adfluvial), and 14 introduced populations: Ne – effective population size, Nb – number of breeding adults, dates of biological data and, importantly, population trend. 79 Fed. Reg. at 49,398. Population trends are derived from genetic data or population monitoring data or a combination of both. *Id.* Populations in the Big Hole River and its tributaries, the Centennial Valley, and the Ruby River are reported as increasing. *Id.* One population, Ennis Reservoir/Madison River is reported as decreasing. All remaining populations are reported to be stable. *Id*.

Plaintiffs assert that FWS ignored science which establishes that effective population sizes around 500 are required to maintain long-term genetic diversity for isolated populations. Pls. Mem. at 21. FWS acknowledged there has been considerable debate about what effective population size is adequate to conserve genetic diversity and long-term adaptive potential. 79 Fed. Reg. at 49,418. However, FWS noted that loss of genetic diversity is typically not an immediate

threat even in isolated populations with an effective population size of 100 or greater and explained that "loss of genetic diversity due to small effective population size typically does not drive species to extinction; other processes, such as habitat degradation, have a more immediate and greater impact on species persistence." 79 Fed. Reg. at 49,419. FWS concluded that there are adequate numbers of breeding adults to minimize loss of genetic diversity and, therefore, loss of genetic diversity is not a threat at the DPS level." *Id.*

Ironically, both FWS and Plaintiffs cite Jamison and Allendorf (AGL00095) to support their position. In their 2012 paper, Jamison and Allendorf note that the "50/500" rule has been a guiding principle for assessing minimum viable effective population size but there has been "much confusion" about how the 500 value should be applied to assess extinction risk and set priorities in conservation biology. AGL00095. Plaintiffs ignore the authors' conclusion that they see effective population size of approximately 500 "as a *long-term aspirational goal* for maintaining healthy and genetically robust populations, and *not a threshold trigger* that predicts extinction risk or facilitates triage decisions to allocate resources in conservation." AGL000100 (emphasis added). Moreover, the authors advocate management strategies that emphasize the maintenance of genetic diversity rather than ones that focus almost exclusively on the requirement to reach a minimum recovery size of thousands of individuals to maintain evolutionary

potential in perpetuity. *Id*. But, while Plaintiffs focus on such a minimum recovery size, FWS has actually followed the authors' recommendation. Rather than declaring the Upper Missouri DPS as threatened or endangered because one or more individual populations have an effective population of under 500, FWS' approach is to evaluate the DPS as a whole. With respect to individual populations, FWS emphasizes, along with genetic diversity, the security of most populations and the growth and improved habitat conditions of others. Thus, FWS properly found that the Upper Missouri DPS is not threatened by low population size even though individual populations have an effective size under 500.

a. FWS properly evaluated the Arctic grayling population in the Big Hole River and its tributaries.

Plaintiffs allege FWS did not use the best available science to determine the Arctic grayling population in the Big Hole. Pls. Mem. at 17-21. Plaintiffs cite DeHann *et al.* (2014) (AGPF002489) for the proposition that there has been a decrease in the effective number of breeding fish in the Big Hole from the late 1980s to 2012 and assert that FWS ignored DeHann's conclusion that the population continued to decline through 2012. Pls. Mem. at 17.

Contrary to Plaintiffs' assertion, FWS did not ignore the DeHann study, but acknowledges it – for good reason – in the context of its climate change analysis. 79 Fed. Reg. at 49,406. One purpose of the study was to determine if genetic measures correlate with climate variables related to fish habitat. AGPF002490.

The study showed mixed results.

DeHann conducted genetic analysis of the Big Hole and Red Rock Creek populations and found that in the Big Hole the number of breeding fish declined from the late 1980s to 2012, but also found that measures of genetic diversity within the population did not change considerably. AGPF002517. One of these measures was allelic richness (Ar) which the authors note has been shown by previous studies to be the most sensitive to tracking changes in population size. AGPF002510. Thus, despite the observed reduction in breeding numbers in the Big Hole, the number of offspring produced has not necessarily declined, based on the genetic data. AGPF002511. Given these mixed results, it was rational for FWS to rely on other sources of information in analyzing individual population size.

Throughout the 2014 Finding, FWS relies on the data and conclusions of FWP Geneticist Robb Leary. Table 3 in the 2014 Finding shows that the number of breeders (Nb) in the Big Hole was between 500 and 900 individuals in 2012. 79 Fed. Reg. at 49,398. Table 4 in the 2014 Finding shows that Nb was 500-900 in 2013, but was only approximately 100 beginning in 2007. 79 Fed. Reg. at 49,401. Together, the tables illustrate a substantial increase and evidence of a growing population based on the number of breeders. FWS reasonably relied on Leary's data to conclude that the Big Hole population is increasing. 79 Fed. Reg. at 49,398.

Finally, Plaintiffs allege that FWS did not adequately address FWP's monitoring data which it asserts "do not reflect the touted population increases." Pls. Mem. at 18. Table 4 of the 2014 Finding clearly states that, measured in terms of catch per unit effort, Arctic grayling abundance increased from 0.2 fish/mile in 2008 to 1.4 fish/mile in 2012 in the CCAA monitoring reaches of the mainstem of the Big Hole River. During the same time period, Arctic grayling abundance increased from 2.9 fish/mile to 7.4 fish/mile in the CCAA monitoring tributaries. 79 Fed. Reg. at 49,401. Plaintiffs focus on only one year's data, 2013, in which FWP captured fewer fish than in 2012. Though Plaintiffs acknowledge FWS's stated reason for disregarding the 2013 data (unusually high stream flows) they dismiss it because the author of FWP's 2013 Monitoring Report was seemingly comparing catch between the Big Hole and its tributaries. What the author actually stated was "[catch per unit effort] was lower in the Big Hole River reaches primarily due to unseasonably high water (show in a figure: as I recall it was three times average)". AGPF002596. The terms "unseasonably" and "three times average" are, by their plain meaning, comparisons over time. Therefore, it is reasonable to infer the author was comparing flow and explaining low capture efficiency compared to previous years.

Moreover, the reported catch rate in the tributaries only decreased from 7.4 fish per mile to 7.35 fish/mile in 2013 (108 fish captured in tributaries/14.7 miles

sampled). *Id.* Therefore, rather than ignoring available biological data, FWS reasonably relied on its expertise when it chose not to include catch numbers for a single year with unusually high flows. Indeed, the decision was explained. Moreover, as Plaintiffs admit, FWS' estimates of grayling abundance were calculated by extrapolating the "estimated effective population size from genetic data." Pls. Mem. at 17; *see* 79 Fed. Reg. at 49,398, 49,418-19. FWS used physical catch results to assess the effectiveness of conservation efforts under the CCAA. 79 Fed. Reg. at 49,401. Overall, FWS' conclusion with respect to the Big Hole Arctic grayling population was well supported.

b. FWS properly evaluated the Arctic grayling population in the Ruby River.

The Arctic grayling population in the Ruby River was reintroduced from Big Hole brood populations in accordance with the Arctic Grayling Recovery Program's objective of establishing fluvial populations within the historic range. AGPF002603. In 2009, FWP determined that the Ruby River grayling population had reached abundance, distribution, and age-class structure thresholds that could potentially support a viable, self-sustaining population. *Id*. As a result, use of remote site incubators to supplement the population was discontinued. In 2013, population monitoring efforts showed that due to the presence of young of the year, natural reproduction had occurred for the fifth consecutive year. AGPF002603.

Without acknowledging the benefits of reestablishing an Arctic grayling population in the Ruby River, Plaintiffs allege that FWS completely ignored population decline in Ruby River. Pls. Mem. at 18-19. Plaintiffs' primary evidence is a graph showing recent declines in total population and fish aged one year or more in the Ruby River. AGSAW00179. Initially, it should be noted this same graph shows that young of the year grayling are *increasing*. Further, Plaintiffs once again rely on the "50/500" rule to assert that the total population size of "just 54-179" and effective population size of 12 (see 79 Fed. Reg. at 49,398) means the Ruby population is not a viable replicate of the Big Hole population because it "cannot provide sufficient redundancy for the Big Hole River." Pls. Mem. at 23.

Again, Plaintiffs simply misinterpret the data. FWS, on the other hand, concluded the Ruby River population is a viable replicate of the Big Hole because the number of breeding individuals in the Ruby River population had increased over the last three years. 79 Fed. Reg. at 49,419. Indeed, Leary's data confirmed the increase. AGPF002616. Leary further showed that allelic richness in the Ruby and expected heterozygosity (another measure of genetic diversity) both increased from 2010 to 2012. AGPF002614-15. FWS relied on this information in finding that "[t]he Ruby River population exhibits a low effective number of breeders, but contains the second highest genetic diversity among all populations. . . . Thus,

inbreeding depression is probably not a concern for this population in the near future." 79 Fed. Reg. at 49,418. Accordingly, FWS reasonably concluded that the Ruby population was viable replicate of the fluvial ecotype. 79 Fed. Reg. at 49,419.

As shown in Table 3 of the 2014 Finding, outside the Ruby River, effective population estimates for other grayling populations vary from 162 to 1,497 – or higher. 79 Fed. Reg. at 49,398. With respect to the effective number of breeders, the FWS concluded that all populations were above the level at which inbreeding is an immediate concern. 79 Fed. Reg. at 49,418. The 2014 Finding and the administrative record clearly demonstrate that FWS used the best available science in determining that the Upper Missouri DPS of Arctic grayling is not threatened by low population size.

3. FWS rationally analyzed potential threats to Arctic grayling due to stochastic threats.

Plaintiffs assert that FWS irrationally concluded that stochastic threats (random environmental disturbances) would not threaten Arctic grayling. Pls. Mem. at 21. FWS acknowledged that individual populations should not all share the same catastrophic risks. 79 Fed. Reg. at 49,418. FWS relied on separation between populations to minimize the chance that stochastic events would threaten the Upper Missouri DPS and concluded that "widely separated populations means that risk of extirpation by a rare, high-magnitude environmental disturbance is

relatively low." *Id.* at 49,419.

Plaintiffs do not assert that FWS' geographic separation analysis is incorrect. Rather, they once again attack the finding as an arbitrary reversal of the 2010 Finding because, they assert, the same geographic separation was evident in 2010. Pls. Mem. at 23. Plaintiffs cite *Defenders of Wildlife v. Hall*, for the proposition that where FWS "flip-flopped" on its prior position that was based on the same information as the challenged decision, a plaintiff is likely to succeed on an ESA listing claim. 565 F. Supp. 2d 1160, 1163 (D. Mont. 2008). With Arctic grayling, however, FWS did not consider the conservation value of the geographically separated adfluvial populations in 2010. As discussed above, in 2014, with new information at its disposal, FWS considered introduced lake populations as having conservation value. Thus, while the geographic separation existed in 2010, it was considered among only five populations, rather than the 20 populations considered in the 2014Finding. New information available to FWS after 2010 supported a change in the assessment of the threat of stochastic events based on geographic separation of populations.

FWS concluded that "[p]opulations of Arctic grayling in the Upper Missouri River DPS are for the most part widely separated from one another, occupying 7 of 10 historically occupied watersheds . . . Thus, risk of extirpation by a rare, high-magnitude environmental disturbance (i.e., catastrophe) is relatively low[.]" 79

Fed. Reg. at 49,419. Again, FWS' decision was not arbitrary. Its conclusion was reasonable and well supported by the record.

4. FWS' analysis of climate change was reasonable and supported by the record.

The FWS effectively analyzed threats to grayling from climate change. To make their case to the contrary, Plaintiffs mischaracterize the FWS' analysis, suggesting it amounted to little more than a passing conclusion that climate change was not a threat because of grayling's ability to increase their "abundance and distribution despite a warming climate" and a reliance on riparian areas. Pls. Br. at 13. Plaintiffs ignore FWS' actual findings which were reasonable and well-supported by the record.

In analyzing the effects of climate change on grayling, FWS reached several conclusions. For instance, FWS noted grayling would be likely to persist in the upper Missouri River because of "an inherent ability… to adjust spawn timing with changing water temperatures[.]" 79 Fed. Reg. at 49,407. In addition, as noted by Plaintiffs, the FWS found grayling "are capable of increasing in abundance and distribution, despite a warming climate." *Id*. Additionally, in the upper Missouri, the FWS found grayling are "responding favorably to increasing quality of habitat… in systems with large-scale, ongoing habitat improvements," and "[r]iparian restoration is expected to minimize the impacts of increasing water temperatures due to climate change." *Id*. Further, the FWS noted, 16 of the lake-

based populations are in habitats that will "likely not be affected significantly by climate change due to their high elevation, intact riparian areas, and cool inputs of tributary waters." *Id*. Moreover, because many of the expected threats to grayling from climate change mirror those threats being addressed by the CCAA, the same analysis applies. Collectively, the FWS' analysis of climate change was well reasoned and supported by the record.

Plaintiffs attempt to cast doubt on the effectiveness of projects under the CCAA, such as riparian enhancement, to lower stream temperatures. Plaintiffs miss the point in two ways. First, Plaintiffs fail to recognize the importance of riparian areas to address the primary driver of increased water temperatures, which is solar radiation rather than air temperature. 79 Fed. Reg. at 49,406. By providing shade and helping to restructure stream channels, new riparian areas have already substantially reduced stream temperatures in the Big Hole. *Id*. at 49,407. Second, Plaintiffs argue there is no guarantee that riparian enhancement will continue to work in the future because stream temperatures are currently warm even in places with intact riparian areas. This ignores the fact that stream temperatures have gone down since the CCAA has been in effect and riparian enhancement projects have been implemented, even though the overall climate has warmed during that time. Contrary to Plaintiffs' suggestion, FWS' analysis of climate change was reasonable and supported by the record.

VI. FWS PROPERLY ANALYZED THREATS TO ARCTIC GRAYLING THROUGHOUT A SIGNIFICANT PORTION OF ITS RANGE

Plaintiffs allege that FWS' findings with respect to whether Arctic grayling are threatened in a significant portion of its range are arbitrary, capricious, an abuse of discretion, and otherwise contrary to the ESA. Complaint ¶¶ 87-87. FWP adopts and incorporates by reference Federal Defendants argument with respect to significant portion of range. *See* Fed. Br. at p. 25-29.

VII. CONCLUSION

Defendant Interveners for the reasons stated herein, respectfully submits the Court should deny Plaintiffs' motion for summary judgment and grant Defendant Intervener's Cross Motion for Summary Judgment.

Respectfully submitted on April 22, 2016.

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CERTIFICATE OF COMPLIANCE

In accordance with Local Rules 1.5 and 7.1 of the Rules of Procedure of the United States District Court for the District of Montana, I certify the following concerning the State of Montana and Department of Fish, Wildlife and Parks' Brief in Support of Cross Motion for Summary Judgment:

1. the document is double spaced except for footnotes and quoted and indented material;

2. the document is Times New Roman, 14 point font; and

3. The document contains 6,410 words as calculated by Microsoft Word.

/s/ William A. Schenk
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Agency Legal Counsel

CERTIFICATE OF SERVICE

I hereby certify that, this 22nd day of April, 2016, I electronically filed the foregoing documents with the Clerk of the Court via CM/ECF system, which will send notification to the attorneys of record.

/s/ William A. Schenk
William A. Schenk
Agency Legal Counsel